

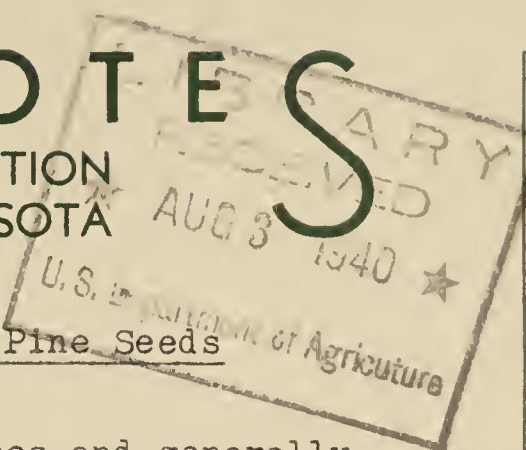
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# TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION  
UNIVERSITY FARM ST. PAUL, MINNESOTA



## Relationship of Temperature to Dispersal of Jack Pine Seeds

Mature jack pine cones remain attached to the trees and generally do not open for many years. In this manner a large supply of seeds--as many as two million per acre--accumulate on the trees. The only practical way that has been found to cause the seeds to disseminate after logging jack pine timber is to lop and scatter the cone-bearing branches close to the surface of the ground where the heat from the sun dries the cones sufficiently for them to open. In order to assure prompt and reasonably complete opening, the cones must be placed on or within a few inches of the ground. At a height of 1 foot the opening is slow and uncertain and at an elevation of 4 or 5 feet the cones are likely to stay closed indefinitely. The following table shows the temperature relationships that account for this behavior.

Average maximum temperature for 14 day  
period in late July and early August

Superior National Forest

Position	Temperature (degrees Fahrenheit)
Ground surface...	127.5
4 $\frac{1}{2}$ inches.....	94.0
9 inches.....	91.8
18 inches.....	91.0
36 inches.....	89.5

Slash-disposal regulations for national-forest timber sales have been modified to meet this requirement for dispersal of jack pine seeds.

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